UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION

P.J. WALLBANK SPRINGS, INC.,

Plaintiff,

v.

AMSTEK METAL, L.L.C.,

Defendant.
_____/

Case No. 2:06-cv-15645

HONORABLE STEPHEN J. MURPHY, III

OPINION AND ORDER GRANTING IN PART AND DENYING IN PART DEFENDANT'S/COUNTER-CLAIMANT'S MOTIONS FOR SUMMARY JUDGMENT (docket nos. 34 & 38).

INTRODUCTION

The plaintiff and counter-defendant in this suit is PJ Wallbank Springs, Inc. ("Wallbank"), a Michigan firm that manufactures springs, and components containing springs, for several major automakers. The defendant and counter-claimant is Amstek Metal, L.L.C. ("Amstek"), which for several months prior to mid-2006 supplied Wallbank with the wire from which Wallbank made the springs for its transmission clutch packs. Amstek, in turn, purchased this wire from a Korean wire mill known as KIS.

The litigation arises out of defects in springs produced by Wallbank in the summer of 2006. More specifically, many of Wallbank's springs manufactured during that time period broke near their tips before being inserted into a vehicle. As a result, Wallbank was forced to repay its customers' costs in dealing with the defective springs, lost a significant amount of new business, and in order to make new springs was obliged to purchase substitute wire at a higher cost.

In this suit, Wallbank claims that this breakage was caused by technical deficiencies in the KIS wire, an alleged breach of contract by Amstek. Amstek has filed a counterclaim, asserting that its wire was conforming, and that it was Wallbank which breached the contract by wrongfully rejecting subsequent shipments and refusing to pay as required by the contract. Currently before the Court are Amstek's motions for summary judgment on both Wallbank's claim and Amstek's counterlcaim.

I. Facts

A. Wallbank's Relationship With Amstek

Wallbank is a manufacturer of auto parts. Defendant Amstek was a major supplier of steel wire to Wallbank. Amstek did not itself manufacture the wire, but instead imported it from a Korean manufacturer known as KISWire or KIS. Wallbank began a business relationship with Amstek in March 2005, when Wallbank placed a blanket purchase order for chrome silicon wire in various diameters (hereinafter "the purchase order"). The two companies had also dealt with each other prior to 2001, but Wallbank had stopped placing orders with Amstek after having various problems with the wire it had delivered (which had also come from KIS). Between 2001 and 2005, Amstek made continuous efforts to win back Wallbank's business, which came to fruition with the purchase order.

The new partnership did not last. One of Wallbank's customers was Allison Transmission ("Allison"), which at the time was a division of General Motors.[1] Wallbank supplied Allison with springpacks for automobile transmissions, each of which contained three springs that Wallbank manufactured from 0.0625" diameter wire. This wire was supplied by Amstek under the March 2005 purchase order. KIS had supplied the wire to Amstek. On June 23rd, 2006, Allison employees noted that some of the springs in the

[1] Allison has since become an independent entity.

springpacks supplied by Wallbank were broken at the tips. This caused significant problems for Allison. Its immediate response was to notify Wallbank of the problem and to quarantine all the potentially defective springpacks. In the longer term, the result of the defective shipment was that Wallbank was put on a "new business hold" by GM – meaning that it could not be awarded any new GM work – and was required to pay more than $400,000 in cost-recovery fees to Allison. Wallbank believed that the breakage was somehow caused by a defect in the wire shipped by Amstek. Accordingly, Wallbank told Amstek to halt all production on its orders, and by refusing to pay for any additional deliveries.

After the discovery of the breakage, several firms and labs were soon put to work in an attempt to identify and correct the problem that was causing its springs to break. On July 7th Wallbank notified Amstek of the problem, and Amstek relayed the information to KIS along with a request for an investigation. In the following weeks KIS was to issue several reports detailing its findings and conclusions as to the defects in Wallbank's springs ("the KIS reports").[2] Wallbank also quickly engaged Stork Climax Research Services, Inc. ("CRS") to investigate its broken springs and to make remedial recommendations. CRS released its report ("the CRS report") on July 26th 2006, and the later KIS reports referred to (but in many respects did not agree with) its data and conclusions. Wallbank additionally asked a competitor of KIS's, the American Spring Wire company ("ASW"), to investigate the KIS wire. General Motors and Allison Transmission also sent troubleshooting experts

[2] These reports have been submitted as evidence in the case and will be discussed in more detail later. It should be noted, however, that two of them are actually dated from June 2006. *See* docket nos. 35-5 and 45-4. As this was before Amstek (or, for that matter, KIS) even knew of the broken springs, the dating is mistaken. There is some evidence in the record to suggest that "June" was inadvertently substituted for "July." *See* Stevens dep., docket no. 45-5, at p. 100. The Court will assume July to be the correct date for these reports.

to identify the problem; Allison's group was known as a "Red X Team." Finally, Wallbank retained the services of Dr. George Krauss, a metallurgical expert. Dr. Krauss was apparently hired after this suit was filed, or at least in anticipation of this litigation. He also produced a report stating his conclusions as to the causes of the spring breakages.

The reports and testimony as to these expert opinions are the main evidence in this case. They will be discussed in detail below.

B. Relevant Contract Terms

The purchase order required that all the wire supplied by Amstek conform to GM186M, a materials specification ("spec") created by General Motors for chrome silicon wire. Docket no. 34-5. The spec included many detailed requirements for the composition and shape of the wire. Relevant here are its requirements for the steel's crystalline microstructure. The nature of the internal microstructures exhibited by steel depends largely on how it is processed and heat treated. One type of tough and strong structure that can be useful in making steel wire is known as tempered martensite. Paragraph 4.4 of GM186, which was incorporated into the purchase order Wallbank placed with Amstek, requires that "[a] longitudinal section [of wire] shall show a fine homogeneous martensitic structure. " Docket no. 34-6. The meaning of each of these terms will be discussed in detail below, but it is important to note that the purchase order also incorporated Wallbank's quality control procedures, which required that "no process changes will be made to any PJW purchased component without prior notification and written approval from PJW. Such [sic] as coatings, drawing compounds, rust preventatives & oils." *Id*.

II. Procedural Posture

In the present suit, Wallbank claims that its springs broke because they were made from wire – supplied by Amstek – that had a martensitic structure that was neither "fine" nor "homogeneous." On these grounds, it asserts that Amstek breached its contract with Wallbank, and also violated the terms of express and implied warranties that accompanied the contract. It additionally claims that Amstek breached the contract by permitting KIS to implement a process change without Wallbank's approval. Wallbank also asserts counts for "rejection of goods" and "revocation of acceptance" with respect to the suspect wire.

Amstek asserts various defenses to each of Wallbank's claims, and on the strength of these defenses Amstek also claims that by failing to pay for the wire, Wallbank itself breached the contract. Before the Court are Amstek's motions for summary judgment as to both Wallbank's claim and Amstek's own counterclaim. As Wallbank offers no defense for its failure to pay other than Amstek's own alleged breach, the issues with respect to both the claim and the counterclaim are identical, and the Court will consider them simultaneously.

III. Legal Standard

Rule 56(c) of the Federal Rules of Civil Procedure provides that summary judgment "shall be rendered forthwith if the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue as to any material fact and that the moving party is entitled to judgment as to a matter of law." Fed. R. Civ. P. 56(c). Summary judgment is appropriate if the moving party demonstrates that there is no genuine issue of material fact regarding the existence of an essential element of the nonmoving party's case on which the nonmoving party would bear the burden of proof at trial. *Celotex Corp. v. Catrett*, 477 U.S. 317, 322 (1986); *Martin v. Ohio Turnpike Comm'n*, 968 F.2d 606, 608 (6th Cir.1992).

In considering a motion for summary judgment, the Court must view the facts and draw all reasonable inferences in a light most favorable to the nonmoving party. *60 Ivy St. Corp. v. Alexander*, 822 F.2d 1432, 1435 (6th Cir.1987). The Court is not required or permitted, however, to judge the evidence or make findings of fact. *Id*. at 1435-36. The moving party has the burden of showing conclusively that no genuine issue of material fact exists. *Id*. at 1435.

A fact is "material" for purposes of summary judgment if proof of that fact would have the effect of establishing or refuting an essential element of the cause of action or a defense advanced by the parties. *Kendall v. Hoover Co.*, 751 F.2d 171, 174 (6th Cir.1984). A dispute over a material fact is genuine "if the evidence is such that a reasonable jury could return a verdict for the nonmoving party." *Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 248 (1986).[3] Accordingly, when a reasonable finder of fact could not find that the nonmoving party is entitled to a verdict, there is no genuine issue for trial and summary judgment is appropriate. *Id.; Feliciano v. City of Cleveland*, 988 F.2d 649, 654 (6th Cir.1993).

Once the moving party carries the initial burden of demonstrating that there are no genuine issues of material fact in dispute, the burden shifts to the nonmoving party to present specific facts to prove that there is a genuine issue for trial. *Anderson*, 477 U.S. at 256. To create a genuine issue of material fact, the nonmoving party must present more than just some evidence of a disputed issue. *Matsushita Elec. Indus. Co.*, *Ltd. v. Zenith Radio Corp*., 475 U.S. 574, 586-87 (1986). As the United States Supreme Court has

[3] Because no jury demand has been filed in this case, the Court will act as the finder of fact if it goes to trial. But "[t]he standard for summary judgment will be the same for cases where the judge sits as finder of fact." *Josey v. John R. Hollingsworth Corp*., 996 F. 2d 632 (3d Cir. 1993).

stated, "there is no issue for trial unless there is sufficient evidence favoring the nonmoving party for a jury to return a verdict for that party. If the [nonmoving party's] evidence is merely colorable, or is not significantly probative, summary judgment may be granted." *Anderson*, 477 U.S. at 249-50 (citations omitted); *see Celotex*, 477 U.S. at 322-23; *Matsushita*, 475 U.S. at 586-87.

Consequently, the nonmoving party must do more than raise some doubt as to the existence of a fact; the nonmoving party must produce evidence that would be sufficient to require taking the issue to trial. "The mere existence of a scintilla of evidence in support of the plaintiff's position will be insufficient," *Anderson*, 477 U.S. at 252; *see Cox v. Ky. Dep't of Transp*., 53 F.3d 146, 150 (6th Cir.1995); there must be evidence on which the finder of fact could reasonably find for the plaintiff.

HOMOGENEITY ISSUES

Wallbank's main claim against Amstek is that the tempered martensitic structure of the wire Amstek delivered was not "homogeneous." This, Wallbank claims, was a violation of the contract as well as express and implied warranties accompanying it.[4] According to Wallbank, it also demonstrates an unapproved change in process at the KIS mill, which also (says Wallbank) would have been in violation of the contract.

I. Technical Background

To create tempered martensite, raw steel must first be heated to tremendously high temperatures, to convert its structure into something called austenite. Austenite does not normally exist at room temperature, however, and so as the steel is cooled it will transform into other microstructures. If the austenite is "quenched" in oil or water so that it crystalizes

[4] Wallbank makes similar claims with respect to its contention that the tempered martensitic structure of the KIS wire was not "fine." Those claims will be discussed separately.

quickly, it will transform into tempered martensite. If, however, either the heating or the quenching processes are managed badly, or if the initial chemistry of the steel was improper, some of the austenite may instead convert into softer microstructures, or even remain present as austenite. Austenite that remains at room temperature is known as "retained austenite." The various reports issued about the problems with PJ Wallbank's springs identified a number of problems that might possibly have arisen as a result of retained austenite in the KIS wire.

After Wallbank shaped the finished wires into springs, another crucial step occurred. The shaping process would cause significant stresses to be built up in the internal structures of the steel. These stresses could be relieved by re-heating the steel in a process known as "tempering" or "stress relieving"; in fact, GM186M requires that "[s]prings coiled from this wire shall be stress relieved immediately after coiling for a minimum of 30 minutes at heat unless otherwise agreed upon between the purchaser and supplier. Typical temperatures are 350 to 450º C." In Wallbank's case, however, Allison had approved a different method of stress relieving. Instead of baking the springs in an oven for half an hour or more, Wallbank stress-relieved its springs by inducing an electrical current in them for only a few seconds. Although this caused the center portion of the spring to reach the temperature range targeted by the spec, the record evidence is uncontradicted that it left the ends of the coil significantly cooler than the target range. Some of the expert opinions produced in support of the parties' positions also reported a link between this temperature gradient and the spring breakage.

II. The Investigators' Opinions–Retained Austenite

A. Stork CRS

CRS conducted in-depth laboratory testing on the samples of wire sent to it by Wallbank – three samples of KIS wire that came from the same reels as the wire used in the broken springs ("the 'bad' KIS wire"), one sample of KIS wire from an unproblematic reel ("the 'good' KIS wire"), and also samples of wire from a former Wallbank supplier, Mount Joy Wire. It noted that untempered springs made from the "bad" KIS wire did not break when formed into springs, which it concluded "points to tempering as the critical processing step." Stork CRS Report No. S-13674 (hereinafter "CRS Report"), docket no. 34-10, at pp. 4.

Consistently with this theory, CRS suspected that the breakage might have been caused by a condition in the springs known as tempered martensite embrittlement, or "TME." According to CRS, TME "is a well recognized but not fully understood form of embrittlement" that occurs – at least according to the currently accepted theory – when tempered martensite that is contaminated with excessive amounts of retained austenite is subjected to tempering temperatures between 200 and 400 degrees Celsius. *Id.* at 4-5. It is believed that under these conditions, the retained austenite can transform into weaker structures along its grain boundaries. *Id.* at 5; Griebel dep., docket no.35-3, at 94. This can lead to a mode of breakage known as intergranular cleavage fracture, the presence of which CRS confirmed in the broken Wallbank springs by examining them with a scanning electron microscope. CRS Report, docket no. 34-10, at 3-5.

CRS performed what it apparently regarded as a standard test for confirming the presence of TME: "tempering steel at about 300º (570º F) for one hour and fracturing the steel." *Id.* To do so, it baked and then air-cooled Wallbank springs made from two lots of "bad" KIS wire, one lot of "good" KIS wire, and one lot of Mount Joy wire. *Id.* It appears that springs made from the "bad" KIS wire fractured while those made from the other wires

did not. *Id.* CRS concluded that this "duplicates field results, and simultaneously verifies TME in the 'Bad' wires." *Id*.

CRS knew that Wallbank's induction tempering process created a temperature gradient on its springs, with the result that the tips of the springs were heated to the range where TME could occur.[5] *Id.* at 3-5. To confirm that the TME was being caused by suboptimal tempering of retained austenite, then, all that remained was to measure the austenite levels in the untempered springs. No retained austenite was "readily apparent," *id.* at 3, and CRS had no equipment capable of directly detecting whether excessive retained austenite was present in the wire. Griebel dep., docket no. 35-3, at p. 57.[6] As a result, it hired TEC laboratories of Knoxville, Tennessee, to determine the retained austenite levels in the wire by means of X-ray diffraction. According to TEC's Senior Materials Engineer, "X-ray diffraction is the most precise way to measure for the presence

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[5] There is some confusion in the record as to the temperature range at which TME can occur, and the temperature at which Wallbank stress relieved its springs. The CRS Report indicated that "TME occurs in steels that are tempered in the range of approximately 200 to 400º C (390 to 750º F). The temperature gradient in the spring causes a portion of the spring to experience this temperature range." *Id.* at 4-5. These Celsius and Fahrenheit temperature ranges for TME, however, do not match with each other. Since the Celsius range roughly corresponds with that given by Wallbank's expert, Dr. Krauss, the Court will treat it as the correct one, and the Fahrenheit range as erroneously converted. The deposition testimony of Mr. Arthur Griebel on behalf of CRS, however, further confuses matters by including a statement that the temperatures in Wallbank's tempering process varied from 800º Fahrenheit in the middle of its springs to 350º F at the tips. Griebel dep., docket no. 35-3, p. 70. The 800º F figure corresponds with the other data in the record, including the testimony of an Allison Transmission employee and the remainder of the CRS report. But 350º Fahrenheit would, according to the rest of the record, be far too cool to cause TME. It thus appears to the Court that Mr. Griebel inadvertently said "350 degrees Fahrenheit" when he meant "Celsius."

[6] Griebel did testify that if retained a "high" percentage of a wire is composed of retained austenite – "[b]etween 5 and 20 percent . . . depending on how it's distributed in the microstructure" – it could be observed "visually . . . under a microscope." Griebel dep. at 57, 77. Although nothing in the record explicitly says so, it seems likely that this type of visual inspection was what led CRS to conclude that no retained austenite was readily apparent.

of retained austenite." Decl. of Elma Beth S. (Pardue) Matlock, docket no. 47-15, ¶ 4. This testing revealed that 4% of the Mount Joy sample was composed of retained austenite, while the "bad" KIS samples had retained austenite contents of 10.2%, 7.5%, and 15.3%, and the corresponding level for the "good" KIS sample was 8.5%.[7] *Id.* p. 8. Tempered springs made from both Mt. Joy and KIS wire had retained austenite levels of 0.7%, which was consistent with CRS's belief that the retained austenite was transformed during the tempering process. *Id.* CRS's conclusion was that

> The higher concentration of RA [i.e., retained austenite] in KIS wire may indicate a greater tendency towards TME relative to the Mt. Joy wire. However, the "Good" KIS wire . . . has a greater concentration of RA than the "Bad" KIS wire . . . . Retained austenite appears to be a necessary but not sufficient condition for TME. The concentration of RA is imperfectly correlated with TME; if it were [not], there would be no mystery surrounding TME.

Id. p. 6.[8]

CRS also regarded Wallbank's suboptimal tempering temperatures as a key element in causing the TME. Arthur H. Griebel, who was deposed on behalf of CRS, testified that "[t]here is a temperature range in which [TME] will form, but . . . that temperature range is a necessary but not sufficient condition." Griebel dep., docket no. 35-3, at p. 102. CRS also noted that "[a]lthough TME is not normally associated with delayed fracture, there may

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[7] These numbers reflect TEC's results as reported in the CRS report. An additional report of TEC test results, that apparently came directly from TEC, also appears in the record. TEC Report No. R-2006-339, docket no. 45-16. This document reports the results of testing on a large number of wire samples, only a few of which are identified. It is not clear whether it includes the results reported in the CRS report, but it does indicate that two samples of suspect KIS wire contained 12.1% and 15.3% retained austenite, while non-suspect KIS wire contained 4.3% and 4.6%. *Id.*

[8] TEC's senior engineer was even more cautious, simply saying that "I can't assess the probability" that Wallbank's spring breakage was caused by excessive retained austenite. Matlock dep., docket no.53-3, p. 53. Whether Ms. Matlock was expressing her lack of qualifications to make such a judgment, or whether she was saying that believed that the data simply did not support a conclusion either way, is not clear.

be some unusual manifestations of TME due to the very short temper time associated with electrical resistance tempering," and that this tempering process would in fact tend to rule out other modes of embrittlement that might be caused by more lengthy tempering processes. CRS report, at 5.

CRS's recommendation was that Wallbank screen incoming wire for TME. CRS also noted that Wallbank could

> monitor the percentage of RA in incoming steel as an indicator of propensity to TME. Because the percentage RA is an imperfect predictor of TME, the data might be used to warn of changes in the steel production process that could potentially affect TME, rather than as a direct indicator of TME. Stork CRS suggests that PJ Wallbank Springs perform periodic checks of retained austenite in incoming material to warn of drifts in steel production practices that could affect TME.

Id. at 6.

B. GM/Allison

GM also conducted an investigation into the causes of the breaking springs; its Allison Transmission Division sent a separate "Red X" team. It appears that these two inquiries were to some degree independent of each other; whether some limited degree of cooperation existed between them is unclear. According to Melvyn Wallbank, President of PJ Wallbank, Allison's inquiry was directed simply toward discovering where in Wallbank's process the problem was occurring – that is, in figuring out where the "Red X" existed. Wallbank dep., docket no. 53-5, at pp. 124-25. Having concluded that the problem only occurred with the KIS wire, and that the "Red X" should be placed there, Allison left to Wallbank the additional jobs of identifying what precisely the problem was, and how it could be corrected. *Id.* Although nothing in the record explicitly says so, the CRS report was apparently the result of Wallbank's efforts to follow up on Allison's findings in that regard.

Whether the GM investigation had similarly limited goals is unclear. That investigation did result in at least two "Evaluation Reports," dated July 27th and August 4th, 2006, and filed under seal in this case. Docket nos. 36 and 37. One of GM's investigators, a Mr. Richard L. Metcalf, also gave deposition testimony. Docket no. 35. He visited Wallbank as part of GM's investigation in July 2006, on the same day that Allison's Red X team was on site there. Metcalf dep., docket no. 35, p. 107.

Unlike CRS, GM did not arrange for an examination of the springs through X-ray diffraction, but the record suggests it did engage in a visual metallographic examination using microscopes. *Id.* at pp. 103-04. In this process, "[a] section of the wire is obtained, a longitudinal section is cut through that wire, and. . . it's polished and etched and evaluated under a microscope." Metcalf dep., docket no. 45-24, pp. 29-30. According to Metcalf, this examination would have revealed levels of retained austenite down to "approximately 7-1/2 to10 percent,"[9] but none was found.[10] *Id.* p. 152; *id.*, docket no. 35, at 103-04. In fact, GM concluded that the wire did show a fine homogeneous tempered martensitic structure, as required by GM186M. Accordingly, GM abandoned its consideration of retained austenite as a possible cause of the breakage. Metcalf dep., docket no. 35, at 103. Its investigation did, however, reveal an area of bluish discoloration in the steel near the location of the fracture in each of the broken springs. *Id.* p. 122.

When the GM team broke off their investigation, they recognized that the heat gradient created by Wallbank's induction tempering "may have" contributed to the breakage, *id.* pp.

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[9] It appears, although it is not certain, that this is a similar technique to the one Mr. Griebel was referring to when he said that minimum retained austenite levels of betwen 5 and 20 percent would be detectable "visually . . . through a microscope." *See* n.4, *supra*.

[10] The Court notes some ambiguity in the record as to whether GM conducted a visual examination capable of detecting retained austenite; John Witte, who was deposed on behalf of GM, testified that none occurred. Docket no. 53-4, at p. 54.

125-26, but on the whole "didn't know what the root cause was," *id.* p. 135. GM, however, had at least "made the conclusion that we could not find anything on the spring that was material related that caused the problem." *Id.* These conclusions were reflected in the GM reports.

Allison's conclusions, however, were somewhat different. Brian Lopossa, an employee of Allison transmission and a member of the "Red X" troubleshooting team it sent to investigate the spring breakages, testified as to his observations and conclusions. He noted that the overall stress relieving temperature "was on the low side of their [Wallbank's] spec," Lopossa dep., docket no. 34-9, p. 49, and also that the temperature was even lower at the tips of the springs, where the breaks had occurred, *id.* at p. 103. The record does not reflect what methods or tests the Red X team used, but in Lopossa's opinion, the breakage occurred because Wallbank "switched steel mills or steel suppliers without notifying" Allison or GM. *Id.* at pp. 52-53. He added that "the tempering has an effect on the material, but there's still something that lived in the KIS material that was the bigger influence. So you have to have both of them to create that failure." *Id.* at p. 134. Accordingly, Allison requested that Wallbank temper the springs according to the GM186M spec, despite Allison's earlier approval of the nonconforming process. *Id.* at 137-41. Wallbank declined to abandon its induction tempering process, *id.*, but did increase the current it used, and thus raised the tempering temperature. *Id.* at 48-51.

C. KIS

As noted, Amstek sent KIS notice of the breakages, as well as samples of the suspect KIS wire. KIS issued its first report on the matter on July 18th, 2006.[11] In its report, KIS noted the same bluish discoloration near the spring tips that GM had identified, and concluded that "tempered embrittlement" was the source of the breakage. *See generally* KISwire Analysis report of 0.0625" OT CrSi wire Breakage for PJ, docket no. 35-4. KIS reported that both of these phenomena were caused by uneven heating and suboptimal temperatures on the spring tips created by Wallbank's stress relieving process.[12] *Id.* It is not clear from the record what "tempered embrittlement" is, or how precisely it is caused.

What *is* clear is that KIS regards "tempered embrittlement" as being entirely distinct from tempered martensite embrittlement. On receiving the CRS Report, KIS performed another series of tests, and issued a second report on July 31st. It confirmed, apparently through the use of X-ray diffraction,[13] that the suspect KIS wire contained between 10 and 15 percent retained austenite, while the other sample provided by Wallbank contained only 3.5 percent. KISwire Additional Analysis Report of 0.0625" OT CrSi Breakage at PJ Wallbank, docket no. 35-5, at § 3.1. KIS additionally reported that Wallbank's tempered springs made from KIS wire also contained between 10 and 13 percent retained austenite. *Id.* This contradicted CRS's results, and was inconsistent with TME, because it reflected

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[11] As noted above, the date is listed as "June 18th" on the report.

[12] KIS apparently had not previously been informed by Wallbank of the temperature gradient. As explained below, its engineers had inferred the existence of the gradient while examining the problems Wallbank encountered with its springs in 2001. It does not appear, however, that the employees who prepared the 2006 reports knew of the gradient; their ability to once again correctly infer its existence lends a good deal of credibility to their report.

[13] An e-mail from a KIS official, which had been translated from Korean to English, indicated that KIS measured the retained austenite levels with an "X-ray defactometer." E-mail from Jaeyong Choi, docket no. 35-8.

that not enough of the retained austenite had transformed to cause TME. *Id.* Instead, KIS found that although its wire broke more often in tests than the other samples when tempered for 40 minutes at 300 degrees C, the KIS wire performed perfectly if the temperature was raised to 400 degrees. *Id.* § 3.2.2. This led KIS to conclude that the stress relieving temperature was the sole element in determining whether the wire would break. *Id.* Again, it identified the most likely cause as "tempered embrittlement." *Id.* § 5.

D. Krauss

Wallbank also retained Dr. George Krauss, an expert in metallurgy with degrees from Lehigh University and the Massachusetts Institute of Technology and a long history of publications in the field, to opine as to the cause of the spring breakage. Dr. Krauss was apparently retained after this litgiation began; the record contains a declaration by him, as well as his expert report, filed under seal.

In his declaration, Krauss stated that he examined, under 500x and 1000x magnification, samples of the batches of KIS wire that produced broken Wallbank springs. Krauss decl., docket no. 45-20, ¶ 10. Krauss stated that this wire "did not show a homogeneous tempered martensitic structure," apparently because "[a]reas with large amounts of retained austenite were visible." *Id.* Amstek casts doubt on this conclusion, however, by noting that in his declaration Krauss does not specifically identify the wire he examined; in his report he refers only to KIS heat 25295-2 as exhibiting high retained austenite, but this heat was not used in making any of the broken springs. *See* TEC Report, docket no. 48-5, at p. 27.[14]

[14] Curiously, the TEC Report also indicates that measured by X-ray diffraction, a sample from heat 25295-2 contained only 3.3% retained austenite. *Id.* As Amstek points out, this does suggest that the visible retained austenite observed by Krauss was uniquely concentrated in a single portion of the wire, and that those concentrations were not present in great enough quantities to be visible in other samples. To the extent this question is

Krauss's conclusion was that the breakage was caused by a phenomenon known as "quench embrittlement." According to Krauss, this is caused when a wire manufacturer uses too much heat – above 1000º C – in the initial conversion of the steel's microstructures into austenite. Such excessive temperatures increase the carbon content of the austenite, which causes the austenite to start converting to martensite at a lower quenching temperature, which in turn reduces the efficiency of the conversion and thus results in higher levels of retained austenite. The excess carbon can also congregate along the austenite grain boundaries and convert to softer microstructures there, making the wire more susceptible to breakage.

As a complement to his quench embrittlement theory, Krauss suggested that the stress of Wallbank's spring-forming processes had caused excess retained austenite in the KIS wire to be converted into brittle untempered martensite, which also would be prone to fractures.

III. Legal Analysis: Retained Austenite Arguments

In support of its motion for summary judgment, Amstek appears to argue that any austenite that was present in the wire did not actually cause the springs to break, and thus that it cannot be liable for breach of contract or warranty on that basis. Alternatively, Amstek argues that the contract between the parties did not limit the amount of retained austenite that the wire could contain.[15]

A. Causation

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relevant, however, the Court regards it as best answered after trial of the suit.

[15] Amstek also offers arguments that are specific to Wallbank's warranty claims. Because these arguments are relevant to all of Wallbank's warranty claims, not just those based on the presence of retained austenite in the wire, the Court will consider them separately.

Amstek suggests that any retained austenite present in the wire should not be regarded as the cause of the damages Wallbank suffered. Specifically, Amstek asserts that the deficiencies in Wallbank's own tempering process should more properly be regarded as causing the damages.

Reading the evidence in the light most favorable to Wallbank, however, the Court concludes that no such finding is necessary. Wallbank has adduced evidence in favor of three different theories as to the cause of the breakage – TME, quench embrittlement, and stress-induced transformation of retained austenite to untempered martensite. On this record, a factfinder could reasonably conclude that any of the three conditions, or some combination of them, caused the breakage. The evidence would also support a finding that neither TME nor stress-induced transformation could have occurred without excess retained austenite being present in the wire. Likewise, the evidence would support a finding that in this situation, quench embrittlement was correlated to and caused by the presence of excessive levels of retained austenite.

If TME was the cause of the breakage, the evidence does indicate that Wallbank could have avoided some or all of the breakage by ensuring that its springs were tempered at the proper heat. But based on the CRS report, a factfinder could reasonably conclude that the retained austenite was also a necessary cause of the embrittlement. Amstek has not made any argument based on proximate causation. Given the current theories of TME expressed in the CRS Report and Griebel's testimony, the Court agrees that spring breakage would have been a foreseeable consequence of excess retained austenite in Amstek's wire.

Thus, Wallbank has adduced evidence that would permit the Court to find, based on any of three theories, that its broken springs were caused by elevated levels of retained

austenite in the wire delivered by Amstek. Accordingly, summary judgment is not appropriate on this ground.

C. Contract Claim– Retained Austenite

Amstek also asserts two retained austenite-related defenses that are specific to Wallbank's contract claim. First, Amstek claims that nothing in the terms of the parties' contract, including the technical specifications it references, limits the amount of retained austenite that may appear in its wire, and thus that Amstek cannot have breached the agreement by supplying wire with austenite in it, regardless of the amount. Second, it argues that even if the spec does limit retained austenite levels, it also provides a specific method for measuring those levels, that Wallbank's evidence of retained austenite in the wire was all obtained through different measurement methods, and therefore that the evidence cannot be read to establish that Amstek's wire breached the contract.

Addressing these arguments requires construction of the relevant portion of the GM186M spec, which as noted provides that "a longitudinal section" of wire must "show a fine homogeneous martensitic structure." Docket no. 34-6 at § 4.4. Specifically, Amstek's first argument would require a narrow construction of the work "homogeneous," and its second a narrow construction of "a longitudinal cross section" and "show." The Court will consider each in turn.

1. The Homogeneity Requirement

Amstek argues that GM186M does not limit the amount of retained austenite that may appear in conforming wire. This argument is bolstered by evidence in the record that Melvyn Wallbank, CEO of the corporation that bears his name, did not regard either the GM186M spec or the contract as a whole as limiting retained austenite levels. Specifically, the record contains emails from Mr. Wallbank in which he states that "[i]t appears there is

no spec to control that [retained austenite] level," docket no. 47-19, and that "[t]here is no print spec for this condition,"docket no. 35-14. Likewise, GM's employee Metcalf was "not aware of any specification" limiting retained austenite. Metcalf dep., docket no. 47-26, at p. 136.

PJ Wallbank concedes that the words "retained austenite" do not appear in the contract. It points, however, to the GM186M spec's requirement that longitudinal sections of wire "show a fine homogeneous martensitic structure." Docket no. 34-6. Wallbank argues that to be "homogeneous," a martensitic structure must not include austenite. This understanding of the contract is also reflected in the record. Metcalf himself, after stating that he did not know of any specification limiting retained austenite, clarified that the requirement of a fine homogeneous tempered martensitic structure does mean that no retained austenite may be present. Metcalf dep., docket no. 47-26, at p. 146. Likewise, Melvyn Wallbank stated at his deposition that "retained austenite isn't consistent with a homogenous structure." Wallbank dep., docket no. 48-7, at 107. ASW's employee Caranna also stated that "[t]empered martensitic structure means no retained austenite," Caranna dep., docket no. 47-5, at p. 105; although this interpretation does not rely on the word "homogeneous, " its thrust appears similar. And, as noted, Dr. Krauss stated that some of the wire "did not show a homogeneous tempered martensitic structure, as required by GM186M," apparently because "[a]reas with large amounts of retained austenite were visible within the martensitic microstructure of the wire." Krauss decl., docket no. 47-4, at ¶ 10.

The disagreement requires the Court to consider which construction of the contract is the correct one. Under Michigan law, the purpose of contract interpretation is to ascertain the intent of the parties. *Rasheed v. Chrysler Corp*., 445 Mich. 109, 517 N.W.2d

19, 29 n. 28 (Mich.1994). Whenever possible, the parties' intent is to be discerned from "the language in the contract, giving it its ordinary and plain meaning as such would be apparent to a reader of the instrument." *Wilkie v. Auto-Owners Ins. Co.*, 469 Mich. 41, 664 N.W.2d 776, 780 (Mich.2003) (citing *Bianchi v. Automobile Club*, 437 Mich. 65, 467 N.W.2d 17, 20 n. 1 (Mich. 1991). The Michigan Supreme Court has explained that a "fundamental tenet of our jurisprudence is that unambiguous contracts are not open to judicial construction and must be enforced as written." *Rory v. Continental Ins. Co.*, 473 Mich. 457, 703 N.W.2d 23, 30 (Mich.2005) (citations omitted). Accordingly, "[a]bsent an ambiguity or internal inconsistency, contractual interpretation begins and ends with the actual words of a written agreement." *Universal Underwriters Ins. Co. v. Kneeland*, 464 Mich. 491, 628 N.W.2d 491, 494 (Mich.2001).

Whether a contract's terms are ambiguous is a question of law for the Court to determine. *GenCorp, Inc. v. Am. Int'l Underwriters*, 178 F.3d 804, 818 (6th Cir.1999). A contract is said to be ambiguous when its words may reasonably be understood in different ways. *Farm Bureau v. Nikkel*, 460 Mich. 558, 596 N.W.2d 915, 919 (Mich.1999). If the Court finds no ambiguity, it should proceed to interpret the contract and may do so at the summary judgment stage. *GenCorp,* 178 F.3d at 818. When a contract is in fact ambiguous, however, the meaning of its provisions is a question of fact to be decided after trial. *Klapp v. United Ins. Gp. Agency*, 468 Mich. 459, 469 (2003).[16] In the Sixth Circuit, the same rule applies under federal law. *Royal Ins. Co. v. Orient Overseas Container Line Ltd.*, 525 F. 3d 409, 422 (6th Cir. 2008).

[16] Again, although this is ordinarily a task for a jury, the Court in this case will sit as finder of fact. To the extent that the contract remains ambiguous at this stage, a trial will still be necessary before the Court can come to a definitive construction of the contract.

Here, it is plain that by using the word "homogeneous" to describe the martensitic structure required by the contract, Wallbank and Amstek meant to place *some* limit on the amount of other structures, including austenite, that were permitted in the wire. To this extent the contract is not ambiguous. Amstek's proposed interpretation of GM186M would apparently mean that no matter how much retained austenite is present, the spec has been satisfied so long as a longitudinal cross section shows *any* martensitic structures remaining in the wire. But this would read the word "homogeneous" right out of the spec, and thus out of the contract. Since, under Michigan law, a court must "give effect to every word, phrase, and clause in a contract and avoid an interpretation that would render any part of the contract surplusage or nugatory," *Klapp v. United Ins. Group Agency, Inc.*, 468 Mich. 459, 468 (2003), the Court is unable to adopt Amstek's proposed reading. The Court thus concludes that the homogeneity requirement imposes some limit on the amount of austenite (or any other structure) that may appear in conforming wire.

The question of precisely how much austenite is permitted is a much murkier one, though. Amstek notes – apparently correctly – that it is impossible to create completely homogeneous martensitic wire, and thus that a strict reading of this requirement would completely frustrate the parties' intentions by making it impossible for Amstek (or anyone else) to perform on the contract. Thus, although the text of the GM186M spec places no explicit lower bound on the level of homogeneity that conforming wire must exhibit, the Court concludes that such a lower bound must exist. There is nothing in the spec, however, or anywhere else in the contract between Amstek and Wallbank, that indicates just how much austenite *is* permitted before the martensitic structure ceases to be "homogeneous."

Extrinsic evidence sheds some light on the matter, but is not conclusive. The record indicates that KIS's target for retained austenite levels was 4%. Email from Jaeyong Choi, docket no. 35-8. Most of the wire that was tested by TEC, which came from various suppliers, had retained austenite levels within a few percentage points of that target. Further, Wallbank's own conclusion from the broken springs episode was that "we need to create a supplemental spec that specifies wire shall have a fine uniform tempered martensitic structure with RA less than 3%." Docket no. 48-9. Additionally, both Metcalf and Griebel testified that relatively high levels of retained austenite – between 5 and 20 percent, according to Griebel – could be observed visually, through a microscope.

After an examination of this evidence, the Court finds the word "homogeneous" in GM186M to remain ambiguous. Although it clearly imposes some maximum on the permitted level of retained austenite that a longitudinal cross section of wire could show, the evidence would permit the Court to decide, after trial, that the spec set the level anywhere from five percent to upwards of twenty percent. As noted, the uncontradicted evidence is that all of the suspect KIS wire exhibited retained austenite levels that were within this range of contractual ambiguity. Thus, the evidence does not support summary judgment in favor of Amstek.

2. Methods of Measuring Homogeneity

Despite the foregoing, GM186M does not purport to regulate the overall austenite content of conforming wire. Instead, it provides that "a longitudinal cross section shall show" homogeneous tempered martensite. Based on this language, Amstek argues that the spec permits imperfections to appear in the wire so long as they could not be detected by visual miscroscopic inspection of a longitudinal cross-section of the wire. Amstek further notes that Wallbank has adduced little or no evidence that any such examination ever

revealed austenite in the suspect KIS wire;[17] instead, Wallbank's evidence of excessive austenite was all obtained through X-ray diffraction.

This construction of the spec's language has considerable appeal. Certainly the drafters of the spec knew of the microscopic method of examination, and contemplated that it would be used on wire subject to GM186M – the same section of the spec that requires homogeneous tempered martensite explicitly provides that cutting, polishing, and microscopic examination must be used for assessing the wire's "decarburization," a characteristic not defined in the record. GM186M, docket no. 34-6, § 4.4. Visual microscopic examination was also actually used by Krauss, CRS, and GM to examine the wire samples with which they were provided (although CRS also arranged for X-ray diffraction). But, there is nothing in GM186M or elsewhere in the record which requires that a wire's homogeneity be assessed *only* by this method. Thus, the Court concludes that the word "show," as it appears in the spec, is also ambiguous and best interpreted after evidence produced at trial. While it seems likely that X-ray diffraction does not create a visual image of a wire it is used upon, on this record it could be reasonable to find no visual image to be necessary; to "show" a homogeneous martensitic structure could simply mean that a test such as x-ray diffraction would directly detect and report the presence of such a structure.

Nor does there appear to be any evidence in the record indicating whether X-ray diffraction is capable of directly examining a longitudinal section of wire, but the Court does not regard this as fatal to Wallbank's case. There is no indication in the record of whether

[17] As noted, Kraus reported his visual observation of retained austenite in a shipment of wire received by Wallbank from KIS in February 2006. The Court does not regard this as creating a genuine question of fact as to whether the broken springs were made from heterogeneous wire.

the phrase "*a* longitudinal cross-section" imposes the homogeneity requirement on *every* cross-section of a wire subject to GM186M, or sets the requirement only for some single cross-section of the wire, or has some other meaning. The Court must determine precisely which meaning to ascribe to the contractual language after a trial on the merits. If at that point the Court were to adopt the first of these interpretations – that *every* longitudinal cross-section of a conforming wire must show a homogeneous martensitic structure – then proof by X-ray diffraction of the wire's overall elevated austenite content would permit an inference that some longitudinal cross-section would inevitably show a heterogeneous structure, and thus that the wire did not conform to the contract.[18] Of course, this kind of indirect proof would likely be less persuasive than direct photographic evidence of the fact. But the Court concludes that it would be sufficient to permit a factual finding in favor of Wallbank on the issue in dispute.

3. Summary– Retained Austenite Contract Claim

In summary, after piecing together several ambiguities in the GM186M spec, the Court concludes that on the record before it that a reasonable finder of fact could determine that by delivering wire containing up to 15% retained austenite, Amstek breached its contract with Wallbank. It could come to this conclusion by way of four subsidiary findings. First, the factfinder could find that under GM186M, a longitudinal cross-section of wire would not "show" a homogeneous martensitic structure – whether by visual examination or some other method – if it included an amount of austenite equal to or less than 15%. Second, the factfinder could reasonably find that the wire delivered by Amstek actually contained levels

[18] If the Court were to conclude that the x-ray diffraction actually measured the austenite content of individual cross-sections, the same conclusion would follow. As the Court assumes that the parties will find it advantageous to adduce further evidence on this issue, it expresses no view as to whether such a conclusion would be supported by the currently sparse record.

of austenite higher than this threshhold-- as high as 15%. Third, the factfinder could reasonably interpret the GM186M spec to require that *all*, or a large portion of, the longitudinal cross sections of wire contain some amount of retained austenite less than this amount. Finally, the factfinder reasonably could infer that, because TEC's and KIS's X-ray diffraction demonstrated that at least one sample of KIS wire contained 15% retained austenite, some longitudinal cross-section of that wire must also have contained at least that amount, and would "show" as much on examination. As this series of findings would be supported by the current record, and as it was noted above that a finding of causation would also be reasonable, the Court is unable to grant summary judgment in favor of Amstek on the retained-austenite aspect of Wallbank's contract claim. Because material issues of fact thus remain as to whether Amstek breached the contract, the Court is also unable to grant summary judgment on Amstek's counterclaim.

D. Contract Claim– Process Change

Wallbank also argues that the higher retained austenite levels indicate that KIS changed the process by which it manufactured the wire delivered by Amstek, and that the contract required Wallbank's consent (which was not obtained here) for any such change. Amstek counters that summary judgment is appropriate because (1) there no direct evidence in the record that any process change actually occurred, and (2) even if a change did occur, it would not have been of a type forbidden by the contract.

Wallbank's evidence that a process change occurred is indeed entirely circumstantial. It notes that in the first several months of 2006, KIS failed to make a single full on-time shipment, docket no. 47-15, but that in June, KIS suddenly began delivering much larger quantities than it had been able to before, Wallbank decl., docket no. 47-2, at ¶ 10. It further notes the theoretical likelihood that "[c]hanges in thermomechanical processing

sequences, temperatures used in the manufacture of the wire, times it's held at temperature, [and] cooling rates during manufacture of the wire" would all create elevated levels of retained austenite. Griebel dep., docket no.35-3, p. 105. Finally, and most crucially, Wallbank's expert Dr. Krauss states that the heightened retained austenite measurements in some of the wire "document that KIS made some change to its heat treat process, in particular changes in austenitizing, that caused retained austenite levels to be 3 to 4 times greater in some wire." Krauss decl., docket no. 47-4, at ¶ 15. Krauss clarifies in his expert report that it was, in his opinion, excess austenitizing heat that must have caused the high levels of retained austenite.

On the other hand, Amstek notes that its supplier KIS repeatedly affirmed that "there has been no change in the Kiswire manufacturing process for oil tempered chrome silicon spring wire ordered by Amstek Metal." Letter from C.H. Park, Managing Director, KISwire, Docket 35-9; *see also* email from Jaeyong Choi to Richard Kim, docket no. 35-8, § 2 ("no differences in process" between good and bad wire); Choi decl., docket no. 35-9, at ¶ 4 ("Kiswire made no changes in the process Kiswire used to produce OTCS wire supplied to Amstek").[19]

The Court concludes that Wallbank's evidence is indeed consistent with a process change. The record unambiguously indicates that the retained austenite *could have*

[19] Wallbank also references an email from John B. Stevens of Amstek to Wan Soo Bahng of KIS, recounting that Stevens "was told that . . . . [in early 2006] KIS Wire had calculated a certain [faster] speed of wire drawing in making the production schedules, but this speed proved to be too high to produce a uniform internal structure for oil tempering. As a result, the drawing speeds were to be reduced in April." Docket no. 45-23. KIS, however, emphatically responded that none of the wire drawn at a higher speed was ever shipped to Wallbank. Email from Jaeyong Choi to Richard Kim, docket no. 35-8, § 2. Melvyn Wallbank himself acknowledged that "I don't have any evidence [that any of the defective wire reached Wallbank]. . . . [I]f they say they contained it, they may well have contained it." Wallbank dep., docket no. 48-7, at p. 229. Thus, the record presents no material issue of fact in this regard: Wallbank received none of this defective wire from KIS.

resulted from changes made at the KIS plant. There is, however, no evidence in the record that such a change actually occurred, let alone that it really did cause the heightened retained austenite levels. Nor is there any evidence that tends to negate, or even to identify, any possible alternative causes of the high austenite levels. Melvyn Wallbank stated that, based on the retained austenite levels, "we are just guessing, as best we can, that [a process change] happened." Docket no. 48-7, p. 106; *see also* Piontkowski dep., docket no. 48-10, p. 140 (no "hard evidence" of a process change).

Thus, Wallbank asks a factfinder to make an inferential leap from the presence of retained austenite to a process change at KIS. This inferential leap is facially plausible, but completely unproven, and thus cannot reasonably be said to be supported by a preponderance of evidence. As a result, the Court concludes that on the evidence adduced to date, no reasonable finder of fact could find in favor of Wallbank on this theory, and the Court will grant summary judgment in Amstek's favor with respect to Wallbank's claim of a process change.[20]

FINENESS OF THE TEMPERED MARTENSITE

GM186M also required that the tempered martensitic structure of conforming wire be "fine." In this suit Wallbank claims that the structure of the tempered martensite in the wire delivered by Amstek did not meet this requirement. Wallbank contends that this also breached express and implied warranties. In this motion, Amstek attacks the factual sufficiency of these claims.

I. Expert Investigations– Fineness of the Tempered Martensite

[20] As a result, the Court need not rule on Amstek's argument that the contract prohibits only changes in aspects of the wire "[s]uch as coatings, drawing compounds, rust preventatives and oils."

The precise meaning of the term "fine," as it appears in GM186M, is not apparent from the record. It appears that tempered martensite has a grain-like structure, and the fineness requirement applies to the size of these grainlike features. However, the uncontradicted record evidence from both Metcalf (GM's employee) and Michael Caranna, the ASW employee who evaluated the KIS wire, is that there is no specification or scale numerically defining what sizes would be "fine," "medium," or "coarse." Metcalf dep., docket no. 35, p. 120; Caranna dep., docket no. 45-18, pp. 29-30. As Caranna put it at his deposition, "fine is probably more a generic or subjective – you know, what I think might be fine." Caranna dep. at 29. Later, he elaborated that "[t]here's no specification that says, oil-tempered martensite should have fine, medium and coarse, and here's the rating system, here's the pictures, here's what they look like. That doesn't exist." *Id.*, docket no. 48-8, at 33-34.

Indeed, most of the investigators did not even comment as to whether the tempered martensitic structure of the KIS wire was "fine." Caranna classified it as "medium to coarse. It's not fine, in my opinion." *Id.* at 161. One of KIS's reports also noted that "KISWIRE's grain size is larger than the other maker." KISwire Intermediate report of 0.0625" OT CrSI Breakage at PJ Wallbank, Docket no. 45-21. Caranna also testifed that coarser martensitic structures can be caused by high austenitizing temperatures. *Id.*, docket no. 45-18, at 158-59.

The record evidence is sparse as to *how* excessively coarse structuring in tempered martensite could cause spring breakage. A document generated by Wallbank in the course of testing the wire indicates that the KIS wire had "a coarse grain structure which allows undesirable residuals to congregate in the voids of the grain structure which can result in a fracture." Docket no. 48-9. The Court has been unable to find any other reference to a

link between the coarseness of a tempered martensitic structure and the susceptibility to breakage of wires composed of that structure.

II. Analysis – Fineness of the Tempered Martensite

In support of summary judgment in its favor on this issue, Amstek relies on the subjective nature of tempered martensite grading, as explained by Caranna and Metcalf. Amstek can be interpreted as arguing both (1) that the "fineness" requirement of GM186M is entirely illusory, and (2) that even if it is not, there is no reliable evidence in the record as to the actual fineness or coarseness of the tempered martensitic structure in its wire.

It is true that both Caranna and Metcalf testified as to the subjectivity of grading martensitic structures. Nevertheless, the Court has already declined to read the word "homogeneous" out of the contract, and it will treat the word "fine" in a similar fashion: clearly, GM186M imposes some upper limit on the size of the grainlike tempered martensitic structures in conforming wire. If, as the record indicates, there is no "gold standard" for measuring coarseness or fineness, then compliance with GM186M would instead have to be determined through a qualitative case-by-case analysis. Although this analysis might in one sense be "subjective," as Caranna testified, with the help of long experience communicated through expert opinions, the Court finds that it could create an intellgible contractual standard. Caranna's testimony that the KIS wire exhibited a medium or coarse structure thus is sufficient to create a genuine question of fact as to whether it conformed with this portion of the spec.

But, with respect to the alleged coarseness of the tempered martensitic structure, Wallbank's contract claim ultimately fails for want of proof of causation. In Michigan, a plaintiff suing for breach of a contract "may recover only those damages that are the direct, natural, and proximate result of the breach." *254 Alan Custom Homes, Inc. v. Krol*, 256

Mich. App. 505, 512 (Mich. App. 2003). Here, the sole record evidence as to causation is a single sentence in a report generated by Wallbank itself, stating that KIS's process caused "undesirable residuals to congregate in the voids of the grain structure which can result in a fracture." This reference to unidentified residuals, which "can" cause breakage, is too vague and conclusory to support a finding that any coarse structures in the KIS wire actually caused Wallbank's problems. Although Wallbank's claim might be plausible as a matter of metallurgical theory, it simply has not adduced any substantial evidence in support of it. The Court will therefore grant summary judgment for Amstek on this issue.

WARRANTY CLAIMS

Amstek also offers defenses that are unique to Wallbank's express and implied warranty claims. Wallbank has asserted that by providing wire with a heterogeneous and coarse-grained tempered martensitic structure, Amstek breached an express warranty that its wire would conform to samples it provided before Wallbank placed the March 2005 purchase order. Wallbank also claims that these defects violated an implied warranty that the wire would be fit for Wallbank's particular purposes. Because these warranty claims rely on the same factual grounds as Wallbank's contract claims, they overlap to a degree with the contract claims. But they are also potentially broader than the contract claim, because the warranties might have required a lower level of retained austenite, or a finer tempered martensitic structure, than did the contract. Additionally, the issues of contractual ambiguity under GM186M – surrounding how retained austenite must be measured – would likely be absent, or at least different, under a warranty. Thus, a separate analysis specific to the warranty claims is required.

The Court will discuss Amstek's defenses to the express and implied warranty claims separately. Because the Court resolves both questions on grounds common to the

homogeneity and to the fineness of the tempered martensitic structures in the wire, it will not engage in separate analyses of those issues.[21]

I. Express Warranty Defenses

Wallbank claims that express warranties as to Amstek's wire arose out of the parties' interactions in 2004. In that year, Amstek sent Wallbank several samples of wire, and Wallbank has adduced internal Amstek records documenting that Amstek "assured them [i.e., Wallbank] that this trial . . . was representative of what they would see on the production orders." Docket no. 47-11, ex. 58, at p. 1.

Michigan law governing the sale of goods provides that any "affirmation of fact or promise made by the seller to the buyer which relates to the goods" creates an express warranty if it "becomes part of the basis of the bargain." M.C.L. § 440.2313(1)(a). Further, "[a] sample or model which is made part of the basis of the bargain creates an express warranty that the whole of the goods shall conform to the sample or model." *Id.* § 440.2313(1)(c). Here, Amstek argues that there is no clear written warranty as to the wire. But "[i]t is not necessary to the creation of an express warranty that the seller use formal words such as 'warrant' or 'guarantee' or that he or she have a specific intention to make a warranty." *Id.* at § 440.2313(2).[22]

Amstek's ultimate argument here, however, is that Wallbank has produced absolutely no evidence as to the actual characteristics of the original samples. The Court agrees that

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[21] In any event, the Court has already concluded (in considering Wallbank's contract claim) that no reasonable factfinder could find that the alleged coarseness of the tempered martensitic structure caused any damages to Wallbank. With respect to the fineness issue, this conclusion alone would support summary judgment on the warranty claims as well.

[22] Although the parties have not addressed it in their briefs, the Court additionally notes that GM186M requires that "all shipments of material or parts under contract or purchase order manufactured to this specification shall be equivalent in every respect to the initial samples approved by engineering." Docket no. 34-6, § 9.

there is no evidence in the record as to whether the original samples contained significant amounts of retained austenite, or exhibited any other defect. As a result, the Court concludes that it would be impossible for any factfinder to assess whether the suspect wire was different in any respect from the samples. Thus, no conclusion that Amstek breached any express warranty is possible on this record, and the Court will grant summary judgment for Amstek on Wallbank's express-warranty claim.

II. Implied Warranty Claim

Wallbank also claims that by supplying wire with high levels of retained austenite, Amstek breached an implied warranty that the wire would be fit for Wallbank's particular purposes.

440 M.C.L. § 2315 provides that when a seller "has reason to know any particular purpose for which the goods are required and that the buyer is relying on the seller's skill or judgment to select or furnish suitable goods, there is . . . an implied warranty that the goods shall be fit for such purpose." Wallbank's claim is that because Amstek knew of the use to which Wallbank put its wire, Amstek implicitly warranted that the wire would be suitable for Wallbank's processes, and that wire with excessive levels of retained austenite was not so suited.[23]

Amstek disputes this conclusion on three grounds. Its primary argument is that as a matter of law, an implied warranty of fitness for a particular purpose cannot arise when a buyer of goods provides the technical specifications himself. Additionally, Amstek argues that it did not know that Wallbank was relying on Amstek's skill to furnish suitable wire.

[23] Needless to say, Wallbank is unable to rely on the mere fact of the breakage to demonstrate the unfitness of the wire – by the time they broke, the springs had been through relatively extensive processing at Wallbank's facility, and on this record there would be no way to tell whether some defect might have crept in after delivery.

Finally, insofar as TME may have caused the breakage, Amstek argues that it had no reason to know the particulars of Wallbank's stress-relieving process that, together with the retained austenite, apparently caused the problem.

A. Buyer-Supplied Specifications and Implied Warranties

Amstek argues that because Wallbank itself demanded that the wire meet GM186M, no further warranty arose that the wire was suitable for Wallbank's particular purposes. In support of this argument, Amstek cites Comment 2 to 440 M.C.L. § 2315, which explains that "any question of fact as to which warranty was intended by the parties to apply must be resolved in favor of the warranty of fitness for particular purpose. . . except where the buyer has taken upon himself the responsibility of furnishing the technical specifications."

In this regard, the Court finds *Automatic Welding Mach. Co. v. Lauer & Associates*, 347 Mich. 218, 222 (1956), to be highly apposite to this motion. In that case the buyer of a piece of machinery had its engineer "sketch[] . . . his concept of the machine . . . and g[i]ve verbal specifications and instructions for its construction." *Id.* at 221. From this, the seller worked up schematics for the machine, which the buyer approved. Interpreting Michigan's then-current statute applicable to implied warranties of fitness for particular purpose, the Michigan Supreme Court held that "no warranty will be implied under the statute or otherwise when [as here] the buyer furnishes the specifications to be followed in the manufacture of the article to be purchased and undertakes to determine what will best supply his needs." *Id.* at 222. The court contrasted its conclusion in *Automatic Welding* with an earlier case, *Dunn Road Machinery Co. v. Charlevoix Abstract & Engineering Co.*, 247 Mich. 398 (1929), "in which an implied warranty was found to exist even though the purchaser of a piece of road finishing machinery had specified that it must be for 16 inch by 18 foot finishing work on concrete pavement and pass specifications of

the Michigan state highway department." *Automatic Welding*, 347 Mich. at 221. The *Automatic Welding* Court found the crucial distinction to be that in its case, the buyer was not simply "advising the seller of the purpose for which the machine was required," *id.*, but instead attempted to dictate the means by which the machine would be made suitable for those purposes. Although more recent cases dealing with this issue are rare, indications are that the Michigan courts have continued to follow this rule. *See Hartford Fire Ins. Co. v. Walter Kidde & Co.*, 120 Mich. App. 283, 294 (1982) (where plaintiff "requested defendant . . . to provide a known, defined good which was subsequently furnished, a directed verdict in favor of defendant . . . on the claim of implied warranty was . . . proper").

Here, as in *Automatic Welding*, the Court is quite confident that Wallbank went far beyond advising Amstek of the purposes for which the wire was required. GM186M and the other contractual requirements present a nearly exhaustive array of highly technical specifications that Wallbank required the wire to meet. The Court thus finds that no implied warranty of fitness for a particular purpose could attach to the wire.[24]

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[24] It should be noted that in its complaint, Wallbank also claims that Amstek breached an implied warranty of merchantability. *See* Compl., docket no. 1, ¶ 23. Under 440 M.C.L. § 2314(1), "a warranty that the goods shall be merchantable is implied in a contract for their sale if the seller is a merchant with respect to goods of that kind." Such a seller warrants that the goods will, among other things, "pass without objection in the trade under the contract description," be "of fair average quality within the description", be "fit for the ordinary purposes for which such goods are used," and be "of even kind, quality and quantity." *Id.* § 2314(2)(a) to (d). In its briefs on the instant motions, Amstek has offered no arguments against the existence of this type of warranty in this case. Presumably this is because, at the time the motions were filed, there was no evidence in the record suggesting that the wire would be regarded as defective in a general sense, as opposed to with respect to Wallbank's unique needs; the CRS report identifying TME as the cause of the breakage was in existence when this motion was filed, but it suggests that retained austenite was problematic only in conjunction with Wallbank's non-standard tempering process. It was only after the motion was filed that the parties exchanged expert reports, and Dr. Krauss's theories as to quench embrittlement and stress-induced austenite transformation became known to Amstek. While both these theories also rely on the presence of retained austenite, they are unlike CRS's TME theory in that they would support a finding that the wire was unsuited for a broad array of uses, instead of simply

In opposition to this conclusion, Wallbank argues that a buyer's provision of specifications does not automatically preclude an implied warranty of fitness for particular purpose, but is merely evidence that the buyer is in fact not relying on the seller's skill in choosing appropriate goods. *See Price Bros. Co. v. Philadelphia Gear Corp.*, 649 F. 2d 416, 423-24 (6th Cir. 1981) (under Ohio law, "[t]he fact that the specifications were jointly arrived at by [the parties to the contract] only emphasizes the fact that [the buyer] Price Brothers exercised its own judgment in selecting the components ordered and did not rely on [the seller] Philadelphia Gear to supply components.") In one sense this argument is highly plausible one – this Court sees little reason why delivering a product that conforms to a buyer's specifications should absolve the seller of any implied warranty liability with respect to characteristics of the good as to which the specifications are silent. But even were the Court free to adopt such a theory (which it is not), those are not the facts presented by this case. On the present record, the only possible manner in which Amstek's wire could have been unfit for Wallbank's purposes was its elevated retained austenite content. But the Court has already concluded that GM186M is *not* silent with respect to retained austenite. In other words, Wallbank provided a specification with regard to the precise defect that it now claims amounted to a violation of an implied warranty of fitness for a particular purposes. In these circumstances, this case is not only controlled by *Automatic Welding*; it is also indistinguishable from the *Price Bros.* case cited by Wallbank, in which the Sixth Circuit found no reliance by the buyer – and thus no implied warranty of fitness for particular purpose – when the buyer had sophisticated knowledge

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being unsuited for Wallbank's unusual tempering process. Thus, the Court will not grant summary judgment on the merchantability issue. If Amstek wishes to argue that the evidence is insufficient to support a verdict for Wallbank on its merchantibility claim, Amstek is free to move for partial summary judgment specifically on that ground.

of its needs and cooperated with the seller in drawing up the specifications for the contract goods. *Id.* at 421-24. Thus, both precedent and common sense dictate that Wallbank's provision of the GM186M spec must, as Michigan law suggests, be viewed as conclusive evidence that Wallbank took it upon itself to determine what sort of wire would meet its needs with respect to homogeneity, and did not rely on Amstek in that regard except to provide wire that met Wallbank's specifications. If any claim for damages arises on these facts, it will be on the contract itself, not on any implied warranty of fitness for particular purpose.

This conclusion also affirms Amstek's second argument: since, as a matter of law, Wallbank actually did not rely on Amstek's skill in selecting suitable wire, Amstek could not have been aware of any such reliance. Thus, summary judgment in favor of Amstek is appropriate on Wallbank's implied warranty claims.

B. Implied Warranty: Amstek's Knowledge of Wallbank's Tempering Process

Even if its argument with respect to buyer-supplied specifications were invalid, Amstek argues that it did not know of Wallbank's particular purpose for the wire, to the extent that it involved a nonstandard tempering procedure. Thus, Amstek argues no warranty of fitness for this purpose should be implied.[25] In contradiction, Wallbank claims that Amstek had thorough knowledge of Wallbank's processes.

The record indicates that Amstek did have some level of familiarity with Wallbank's stress-relieving system. Springs made from Amstek-supplied wire started breaking during its earlier relationship with Wallbank, in 2001. Wallbank decl., docket no. 47-2, at ¶ 12. In

[25] This argument is relevant only to the extent that Wallbank's tempering procedures were actually involved in causing the breakage. On the current record, this means that the argument applies only to the extent that the breakage was caused by TME.

response Wallbank switched suppliers, *id.*, and Amstek asked KIS to investigate the matter. KIS's final report to Amstek was dated July 31, 2001, and suggested a temperature gradient caused by Wallbank's stress relief process as the probable cause of the breakage. *See generally* KISWire, PJ Wallbank/Amstek Analysis on the Breakage of 0.0625" OT CrSi, docket no. 47-7; *id.* at § 5.5 ("The hardness test is performed to determine the difference in heat treatment at various points of the springs turns . . . .") Wallbank also notes that an Amstek sales representative made a note of the process, although not of the gradient, when touring the plant in June of 2005, as part of an investigation into excessive oil on the initial shipments of KIS wire that had caused noxious smoke and fumes when current was run through the springs made from it. Docket nos.45-9; 47-11. Finally, an induction process of this type had been the subject of a published article. Docket no. 47-2.

As noted above, however, the record reflects that the high levels of retained austenite were only capable of causing spring breakage in conjunction with suboptimal tempering temperatures, and that Wallbank's process created such temperatures at the ends of its springs. It is this characteristic of Wallbank's process, then, that created its particular need for low-austenite wire. Thus, if Amstek is to be liable on an implied-warranty theory of the type asserted by Wallbank, it must have known not merely that Wallbank used an induction tempering process, but also that the process created a temperature gradient on the spring such that some areas were heated only to levels where tempered martensite embrittlement can occur.

Amstek claims that there is no evidence at all in the record that it had any knowledge of the temperature gradient on Wallbank's springs. This is not entirely correct; as noted, KIS's engineers had inferred the existence of Wallbank temperature gradient in 2001, and since Amstek was the middleman between KIS and Wallbank this knowledge may well

have been communicated to it. There is, however, significant evidence that by the time Wallbank placed its purchase order, Amstek was not aware of the gradient.[26] The article published on the topic, and filed in evidence by Wallbank, states that "[i]n order that the heating be uniform, voltage, current and time are all precisely controlled," according to a formula provided in the text of the article. Docket no. 47-2 at p. 48. Melvyn Wallbank himself admitted that the induction process was not disclosed to Amstek "in any excruciating detail," at p. 208-09, and probably did not include an explanation of the heat gradient, Wallbank dep., docket no.48-7. KIS's own internal documents from 2006, which presumably reflect information communicated to it by Amstek, reflect the same relatively general level of understanding. Docket no. 35-4, at § 3 ("[t]he customer process was not known exactly . . . . Stress relieved with bracket by AC Electricity with slight compression to ensure contact.")

In sum, while there is some circumstantial evidence in the record that Amstek may have known of the shortcomings of Wallbank's tempering process, there is no evidence that Wallbank itself ever actually communicated those shortcomings to Amstek. On this record, the Court doubts whether any reasonable finder of fact could conclude that Amstek knew of Wallbank's particular need for wire that would not become embrittled when its edges were exposed to suboptimal tempering temperatures. What is certain is that no reasonable finder of fact could possibly conclude that Amstek should have known that Wallbank was relying on it to furnish wire capable of producing good springs even when run through that process. As a result, summary judgment in favor of Amstek is further appropriate on this aspect of Wallbank's implied-warranty claim.

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[26] It appears that sometime after the 2001 report was issued, knowledge of the temperature gradient was lost even to KIS's own institutional memory – no reference to this prior knowledge is made in the 2006 KIS reports conducted at Amstek's behest.

CLAIMS FOR REJECTION OF GOODS AND REVOCATION OF ACCEPTANCE

In its complaint, Wallbank asserts additional counts for "rejection of goods" and, alternatively, for "revocation of acceptance." Amstek requests that these counts be dismissed, arguing that they are not cognizable claims under Michigan law. Wallbank, however, has pointed out two of the many cases in which the Michigan courts have unequivocally acknowledged the existence of a cause of action for "revocation of acceptance." *Head v. Phillips Camper Sales & Rental, Inc.*, 234 Mich. App. 94, 101 (1999) ("Plaintiff first contends that the trial court erroneously instructed the jury [as to defendant's asserted] defense to her claim for revocation of acceptance. We agree."); *Henderson v. Chrysler Corp.*, 191 Mich. App. 337, 341 (1991) ("revocation of acceptance is . . . an action at law"). As a result, dismissal of the revocation claim is not appropriate.

Wallbank has not advanced an argument in support of its "rejection of goods" claim, however, and the Court is not aware of any such cause of action under Michigan law. Therefore, it will dismiss this count.

CONCLUSION AND ORDER

The Court finds that by incorporating the requirements of GM186M, including its requirements of a "homogenous" martensitic structure, the contract between Amstek and Wallbank limited the amount of retained austenite that could be contained in the wire. Although the Court is unable to discern the precise limit on the record before it, the evidence would permit a reasonable factfinder to conclude that the contract limited the retained austenite permitted in some or all longitudinal cross-sections of wire to a level lower than what was actually present in the wire delivered by Amstek. As a result, the Court will not grant Amstek summary judgment on this aspect of Wallbank's contract claim.

Because a factual question thus also exists on whether Amstek was the first to breach the contract, summary judgment on its counterclaim for breach of contract will also be denied.

Wallbank, however, has not submitted sufficient evidence to permit a factual finding that the wire Amstek supplied was dissimilar from the samples it provided. As a result, Amstek is entitled to summary judgment on the express warranty claim. Additionally, because Wallbank itself supplied the specifications for the wire, no implied warranty of fitness for particular purpose arose, and summary judgment on that claim will therefore be entered in favor of Amstek. Finally, Wallbank has not adduced evidence sufficient to support a finding that KIS changed its production processes in violation of the contract, or that any breach of the contract with respect to the coarseness of the wire caused damages to Wallbank in any way. Therefore, summary judgment will also be granted with respect to those aspects of Wallbank's contract claim.

WHEREFORE, it is hereby **ORDERED** that:

Amstek's motion for summary judgment as to Wallbank's Count I, the contract claim, is **DENIED IN PART**, to the extent that Wallbank claims that it suffered damages as a result of the wire containing levels of retained austenite in excess of what was permitted by the contract, and **GRANTED IN PART**, with respect to all other aspects of the count;

Amstek's motion for summary judgment as to Wallbank's Count II, its warranty claims, is **GRANTED IN PART**, to the extent that Wallbank seeks to recover on express warranties, implied warranties of fitness for particular purpose, or any implied warranty

that the martensitic structure of Amstek-supplied wire would be "fine," and **DENIED IN PART**, to the extent that Wallbank seeks to recover on an implied warranty of merchantability based on excessive retained austenite in the wire ;

Amstek's motion for summary judgment on its counterclaim is **GRANTED IN PART**, with respect to all issues on which its motion for summary judgment on Wallbank's claims has been granted, and **DENIED IN PART**, with respect to all other issues;

Amstek's motion to dismiss Wallbank's Count III, its claim for "rejection of goods," is **GRANTED**. Count III is **DISMISSED WITH PREJUDICE**; and

Amstek's motion to dismiss Wallbank's Count IV, for revocation of acceptance, is **DENIED**.

SO ORDERED.

s/Stephen J. Murphy, III
Stephen J. Murphy, III
United States District Judge

Dated: February 17, 2009

I hereby certify that a copy of the foregoing document was served upon the parties and/or counsel of record on February 17, 2009, by electronic and/or ordinary mail.

Alissa Greer
Case Manager